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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,006	12/08/2003	Fumitaka Toyomura	03500.017767.	9107

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

HALL, ASHA J

ART UNIT	PAPER NUMBER
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1709

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/729,006

Applicant(s)

TOYOMURA, FUMITAKA

Examiner

Asha Hall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/13/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al. (6,169,678).

Kondo et al. (6,169,678) discloses solar cell battery arrays (11,12,13) (col.1; lines: 6-11) comprising at least one power conversion unit (21) (paragraph 33) having a plurality of solar cell elements/solar battery arrays (11,12,13) (col.1; lines: 6-11) and a power converter (21) provided in a position corresponding to a region surrounded by all the solar cell elements (11,12,13) (col.5; lines: 61-67 & col.6; lines: 1-5).

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al. (US 2002/0038667).

With regard to claim 1 and 2, Kondo et al. (US 2002/0038667) discloses the solar cell module (1) (paragraph 1) according to claim 1, wherein at least two of the

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power conversion units (21)(paragraph 33) are included and each power converter/inverter unit (3) (paragraph 36) is electrically connected to a power converter of an adjacent power conversion unit (Figure 1).

In respect to claim 3, Kondo et al. discloses that the outputs of the solar cell elements/solar battery unit (2) (as shown in Figure 7) are inputted to the power converters/inverter units (3) (paragraph 36) corresponding to the solar cell elements (paragraph 36), and the power converters (21) convert the inputted outputs of the solar cell elements(2) and output the converted outputs (paragraph 36 & paragraph 51).

With regard to claim 4, Kondo et al. discloses that all output terminals/output connector (Figure 2) of the solar cell elements (1) are electrically connected (also shown in Figure 3) to all input terminals/input connector (8) of the power converters corresponding to the output terminals (9) respectively (paragraph 6).

In respect to claim 5, Kondo et al. discloses a plurality of input terminals/input connector of the power converters (paragraph 6) that are provided on the same and one surface (Figure 3).

4. Claims 1& 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Takehara et al. (US2001/0032664).

In regard to claim 1, Takehara et al. discloses cell module (101) (Figure 1), wherein a power conversion unit (201) having a plurality of solar cell elements (201) power converter provided in a position corresponding to a region surrounded by all the solar cell elements (paragraph 132).

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With respect to claim 6, Takehara et al. discloses a photovoltaic layer (Figure 3) of each of the solar cell elements has p-n junctions (303 a, b, c) or pin junctions of two or more layers (paragraph 70).

5. Claims 10 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Toyomura et al. (US 2002/0179140).

In regard to claim 10, Toyomura discloses in Figure 8 a module comprising at least one power conversion unit/power generator unit (5112) having two adjacent solar cell elements/ modules (5110) and a power converter (5107) provided in a position corresponding to a region(refer to figure 8) on the extension of a gap (paragraph 7) between the two adjacent solar cell elements.

With respect to claim 12, Toyomura discloses in Figure 1 the solar cell module (110) according to claim 10, wherein outputs of the two adjacent solar cell elements (106) are inputted to the power converters (107) corresponding to the outputs, and the power converters (107) convert the inputted outputs (108) of the two adjacent solar cell elements (106) and output (108) the converted outputs.

6. Claims 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Takabayashi et al. (US 2002/0195136) .

With respect to claim 7, Takabayashi et al. (US 2002/0195136) discloses a solar cell module comprising at least one power conversion unit (1303) having a plurality of solar cell elements (1102) arranged on a plane (1103) and a power

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converter/conditioner (1303) as seen in Figure 11- Figure 13. Claim 7 reads on the power converter (1303) of Takabayashi et al., which achieves a position as shown in Figure 13 of minimizing a sum of all collecting losses by being the closest to the position of the solar cell array (1303) when collecting a power generated by the solar cell elements to the power converter.

In regard to claim 8, Takabayashi et al. (US 2002/0195136) discloses a solar cell module comprising at least one power conversion unit (1303) having a plurality of solar cell elements (1101) arranged on a plane (1103) and a power converter (1303) (as shown in Figure 11-13), wherein the solar cell elements respectively have a terminal member (1104 & 1105) and the power converter (1303) is arranged in the closest position between the terminal members (1104 & 1105) in a state of arranging the solar cell elements (paragraph 21).

With respect to claim 9, Takabayashi et al. (US 2002/0195136) discloses a solar cell module as shown in Figure 11-13 comprising at least one power conversion unit (1303) having a plurality of solar cell elements (1101) arranged on a plane (1103) and a power converter (1303), wherein the solar cell elements (1102) respectively have a terminal member (1104 & 1105) and the power converter (1303) is arranged in the closest position between the terminal members (1104 & 1105) in a state of arranging the solar cell elements (1102) (paragraph 21). Claim 9 reads on the power converter (1303) which achieves a position as shown in Figure 13 of minimizing a sum of all collecting losses by being the closest to the position of the solar cell array (1303).

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6. Claims 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Higashikozono et al. (US 2003/0193322).

Claim 13 reads on the power generation unit/solar cell module (1) of Higashikozono et al. as shown in Figure 16. Higashikozono et al. discloses a solar cell module (1) comprising at least one having a plurality of solar cell elements (3) and a terminal box (5) provided in a position corresponding to a region (1) surrounded by all the solar cell elements (3) to collect outputs (7) of the solar cell elements (3) (paragraph 16).

In regard to claim 14, Higashikozono et al. further discloses three power generation units/ solar cell modules (1), and each power generation unit/solar cell modules (1) is electrically connected (7) to a terminal box (5) of an adjacent power generation unit/solar cell modules (1) (paragraph 7 & 16).

In regard to claim 15, Higashikozono et al. discloses a solar cell module (1) in Figure 15, as comprising at least one power generation unit/solar cell module/ photoelectric conversion element (1) having two adjacent solar cell elements (3) and a terminal box(5). Higashikozono et al. reads on having the terminal box (5) placed in a region as shown in Figure 16 where there is a gap between the two adjacent solar cell elements (3) to collect outputs (7) of the two adjacent solar cell elements (3).

With respect to claim 16, Higashikozono et al. discloses a solar cell module (1) in Figure 16, as three of the power generation unit/photoelectric conversion elements of the solar module (1). Higashikozono et al. also discloses a power generation unit/solar

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modules (1) is electrically connected (7) to a terminal box (5) of an adjacent power generation unit/solar module (1) (paragraph 16).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Toyomura et al. (US 2002/0179140) in view of Kondo et al. (US 2002/0038667).

In respect to claim 11, Toyomura et al. discloses a the solar cell module (110) in Figure 1 according to claim 10; but fails to disclose at least two power conversion units electrically connected to a power converter.

Kondo et al. discloses a solar cell module/solar battery unit (3) electrically connected to a power conversion unit (21), and discloses in Figure 1, a plurality of the power conversion units (21) which is apart of the ac modules (1) with each power converter/inverter unit (3) (Figure 3) electrically connected (Figure 1) to a power converter/inverter unit (3) of an adjacent power conversion unit (21) (paragraph 6).

Kondo et al. has described this particular design as to incorporate an array of solar batter modules and electronic power converters to produce a power generation apparatus (paragraph 1). Thus, it would have been obvious to one of ordinary skill in the

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art at the time of the invention to incorporate the array of solar battery units and power conversion units taught by Kondo et al. to create a plurality of solar cell modules of modified Toyomura et al. in order to achieve a plurality of solar modules that enhances the solar power generation apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asha Hall whose telephone number is 571-272-9812. The examiner can normally be reached on Monday-Friday 7:30-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJH



ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER